

AMENDMENTS TO THE SPECIFICATION:

Please insert the following heading before the paragraph beginning on page 1, line 2:

Background Of The Invention

(1) Field of the Invention

Please insert the following heading before the paragraph beginning on page 1, line 10:

(2) Description of the Art

Please insert the following heading before the paragraph beginning on page 5, line 11:

Summary Of The Invention

Please insert the following heading before the paragraph beginning on page 6, line 26:

Description Of The Figures

Please insert the following heading before the paragraph beginning on page 7, line 23:

Detailed Description Of The Invention

Please amend the paragraph on page 15, beginning at line 25 as follows:

As before, two input signal vectors **A** and **B**, having respective amplitudes **V_a** and **V_b**, at inputs 102a and 102b are split into signal fractions **a₁.A**, **a₂.A**, **a₃.A** and **b₁.B**, **b₂.B**, **b₃.B** by splitters 106a and 106b and fed to first and second inputs 1 and 2 of first, second and third hybrids 110 to 114: i.e. signals **a[n].A** and **b[n].B** **a[n + 1]A + b[n + 1]B** are input to nth hybrid 110 + 2n, n = 0, 1 and 2. The splitting ratios are set so that **a₁ = b₁**, **a₂ = b₂** and **a₃ = b₃** in order to implement phase to power conversion in the hybrids 110 to 114.

Please amend Table 1 on page 16, beginning at line 18 as follows:

Table 1

Hybrid	Input	Fraction		Hybrid	Input	Fraction
144 ₄	1	c1.(a1.A + b1.B)		144 ₇	1	e2.(a2.A + b2.B)
144 ₄	2	d1.(a3 ₁ .A - b3 ₁ .B)		144 ₇	2	f2.(a2.A - b2.B)
144 ₅	1	c2.(a1.A + b1.B)		144 ₈	1	g1.(a3.A + b3.B)
144 ₅	2	d2.(a3 ₁ .A - b3 ₁ .B)		144 ₈	2	h1.(a4 ₃ .A - b4 ₃ .B)
144 ₆	1	e1.(a2.A + b2.B)		144 ₉	1	g2.(a3.A + b3.B)
144 ₆	2	f1.(a2.A - b2.B)		144 ₉	2	h2.(a4 ₃ .A - b4 ₃ .B)

Please amend the paragraph on page 17, beginning at line 25 as follows:

Table 2 below shows output signals from the hybrids 144₄ to 144₉. The splitter fractions c1 etc. are necessary scalar quantities, but terms in parenthesis in Table 2 column 4, e.g. (a1.A + b1.B) and (a3₁.A - b3₁.B), are vector additions and subtractions. The phase difference is imposed between Va and Vb as described earlier with reference to Figure 3 or 4, and vectors are indicated by characters in bold type. Moreover, as previously described, resultants of vector additions (a1.A + b1.B), etc, between signals of equal magnitude are all in phase with one another, and differ in phase by 90 degrees to all vector subtractions (a3₁.A - b3₁.B) etc. The vector subtractions are therefore all automatically in quadrature with the vector additions.

Please amend the Table 2 on page 18 as follows:

Table 2

Antenna Element	Hybrid	Output	Output Signal
148U6	144 ₄	Sum	c1.(a1.A + b1.B) + d1.(a3 ₁ .A - b3 ₁ .B)
148U5	144 ₅	Sum	c2.(a1.A + b1.B) + d2.(a3 ₁ .A - b3 ₁ .B)
148U4	144 ₆	Sum	e1.(a2.A + b2.B) + f1.(a1.A - b2.B)

148U3	144 ₇	Sum	$e2.(a2.A + b2.B) + f2.(a2.A - b2.B)$
148U2	144 ₈	Sum	$g1.(a3.A + b3.B) + h1.(a\underline{13}.A - b\underline{13}.B)$
148U1	144 ₉	Sum	$g2.(a2.A + b3.B) + h2.(a\underline{13}.A - b\underline{13}.B)$
148L1	144 ₉	Diff.	$g2.(a3.A + b3.B) - h2.(a\underline{13}.A - b\underline{13}.B)$
148L2	144 ₈	Diff.	$g1.(a3.A + b3.B) - h1.(a\underline{13}.A - b\underline{13}.B)$
148L3	144 ₇	Diff.	$e2.(a2.A + b2.B) - f2.(a2.A - b2.B)$
148L4	144 ₆	Diff.	$e1.(a2.A + b2.B) - f1.(a2.A - b2.B)$
148L5	144 ₅	Diff.	$c2.(a1.A + b1.B) - d2.(a\underline{31}.A - b\underline{31}.B)$
148L6	144 ₄	Diff.	$c1.(a1.A + b1.B) - d1.(a\underline{31}.A - b\underline{31}.B)$

Please amend the paragraph on page 18, beginning at line 3 as follows:

The expressions in the fourth column of Table 2 are of the form $\mathbf{P} + \mathbf{Q}$, where \mathbf{Q} is a vector in quadrature with a vector \mathbf{P} . All \mathbf{P} vectors are in phase with one another and all \mathbf{Q} vectors are in phase with one another. They can therefore be written as $\mathbf{P} + j\mathbf{Q}$, where P and Q are scalar magnitudes of \mathbf{P} and \mathbf{Q} . E.g. for antenna element 148U6:

$$\mathbf{P} = e2c1.(a1.A + b1.B) \text{ and } \mathbf{Q} = d1.(a\underline{31}.A - b\underline{31}.B)$$

Please amend the Table 3 on page 18 as follows:

Table 3

Splitter	Splitter Output	Split Ratio	
102a	a1	0.2500	<u>0.2286</u> -9.5dB -12.8dB
	a2	0.5000	<u>0.7873</u> -7.20dB -2.1dB
	a3	1.0000	<u>0.5725</u> -1.18dB -4.8dB
102b	b1	0.2500	<u>0.5725</u> -9.5dB -4.8dB
	b2	0.5000	<u>0.7873</u> -7.20dB -2.1dB
	b3	1.0000	<u>0.2286</u> -1.18dB -12.8dB

142c	c1	1.0000 <u>0.3011</u>	-3.00dB <u>-10.4dB</u>
	c2	1.0000 <u>0.9536</u>	-3.00dB <u>-0.4dB</u>
142d	d1	1.0000 <u>0.7286</u>	-0.97dB <u>-2.8dB</u>
	d2	0.5000 <u>0.6849</u>	-7.00dB <u>-3.3dB</u>
142e	e1	1.0000 <u>0.6112</u>	-3.00dB <u>-4.3dB</u>
	e2	1.0000 <u>0.7915</u>	-3.00dB <u>-2.0dB</u>
142f	f1	1.0000 <u>0.6112</u>	-0.97dB <u>-4.3dB</u>
	f2	0.5000 <u>0.7915</u>	-7.00dB <u>-2.0dB</u>
142g	g1	1.0000 <u>0.7286</u>	-3.00dB <u>-2.8dB</u>
	g2	1.0000 <u>0.6849</u>	-3.00dB <u>-3.3dB</u>
142h	h1	1.0000 <u>0.3011</u>	-0.97dB <u>-10.4dB</u>
	h2	0.5000 <u>0.9536</u>	-7.00dB <u>-0.4dB</u>